GREATER PRAIRIE-CHICKEN AND SHARP-TAILED GROUSE DISPLAY GROUNDS AND LOCATION ON USFWS JOHN W. AND LOUISE SEIER NWR 2008-2009


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Introduction
The primary objective of this cooperative project between the US Fish and Wildlife Service (USFWS) and Nebraska Game and Parks Commission (NGPC) was to conduct a comprehensive and systematic search to map and collect data on prairie grouse display grounds on the John W. and Louise Seier National Wildlife Refuge (NWR).

John W. and Louise Seier NWR is 2,400 acres in size. It was established in 1999 to preserve, restore, and enhance the ecological diversity and abundance of migratory and resident wildlife. The Refuge lies in the sandhills of Nebraska -- the largest remaining tract of mid- and tall grass prairie in North America. John W. & Louise Seier NWR is located about 25 miles south of Bassett, Nebraska located in Rock county, off of U.S. Highway 183. The Refuge was once a working cattle ranch owned by the Seier family; the family had homesteaded the area in the mid-1800s.

Plains sharp-tailed grouse (*Tympanuchus phasianellus jamesi*) and greater prairie-chicken (*Tympanuchus cupido pinnatus*), collectively known as prairie grouse, are species native to the Sandhills prairie and larger grassland landscapes. The Partners in Flight program, administered by the U.S. Fish and Wildlife Service, identifies the greater prairie-chicken as one of the highest priority species for conservation in this area. The recently completed Nebraska Natural Legacy Project, a collaborative planning effort lead by the Nebraska Game and Parks Commission and comprehensive wildlife conservation strategy for Nebraska, also identifies the greater prairie-chicken as a priority species for management focus.

Methods
Sharp-tailed grouse and greater prairie-chicken display grounds were surveyed during the spring of 2008-2009 on and within a 1-mile radius of the Refuge (approximately 18 sections). Prairie grouse populations are generally monitored and estimated based on spring breeding males and the number of display grounds. Surveys were conducted between April 14-23, 2008 and March 13th-April 25th. The surveys consisted of listening for display ground activity along existing roads and trails and from prominent hills and then attempting to approach and locate each display ground. Surveying was conducted during peak breeding activity, generally beginning one half to one hour prior to sunrise and terminating approximately two hours after sunrise. Some display grounds were also located by visual sightings of birds while en route to other sites. A global positioning system was used to determine the universal transverse mercator (UTM) coordinates for the center of each display ground. Once display grounds were located, at least two attempts were made to count both displaying males and the total number of birds present.

Results
Sharp-tailed grouse and greater prairie-chickens display grounds were monitored for the first time on the refuge in 2008. Five sharp-tailed grouse dancing grounds and 5 greater prairie-chicken booming grounds (Figures1 & 2) were recorded during this project and Table 1 gives the UTM-coordinates of each display ground. Of the 10 grounds located, one sharp-tailed grouse and no greater prairie chicken display grounds were located on the refuge. The remaining sharp-tailed grouse and all greater prairie-chicken display grounds were found on privately owned land adjacent to the refuge. Four greater prairie-chicken booming grounds were located in lowland sites consisting of valleys, wetland complexes, lowland windmill flats and mowed sub-irrigated meadows. One greater prairie-chicken booming ground and 5

sharp-tailed grouse dancing grounds were located on upland sites in the hills and elevated ridge tops.

A total of 103 greater prairie-chickens and 87 sharp-tailed grouse were observed on the grounds (Table 2). Greater prairie-chicken booming grounds had a total of 72 displaying males, with grounds ranging from 7 to 24 males and an average 14.4 males per ground. The total birds per ground ranged from 10 to 38 birds with an average of 20.6 birds per ground. Sharp-tailed grouse had a total of 65 displaying males, with grounds ranging from 10 to 19 males and an average of 13 males per dancing ground. The total number of sharp-tailed grouse per ground ranged from 13 to 25 with an average of 17.4 birds per ground.

In the spring of 2009, for the second consecutive year, sharp-tail grouse and greater prairie-chicken display grounds were monitored on the John W. and Louise Seier NWR. Of the 5 sharp-tail grouse and 5 greater prairie-chicken booming grounds that were recorded in the 2008 survey only 3 of the 5 sharp-tail grounds remained and the previous 5 prairie-chicken grounds remained intact, no new display grounds of either species were observed (Figure 1 & 2). None of the 8 display grounds observed were located on the refuge, all of which were located on privately owned land adjacent to the refuge. Four greater prairie-chicken booming grounds were located in lowland sites consisting of valleys, wetland complexes, and mowed sub-irrigated meadows. One greater prairie-chicken booming ground and 3 sharp-tail grouse dancing grounds were located on upland sites in the hills and ridge tops. The site of the sharp-tail grouse ground JSNWR ST 5 had been converted into an agriculture crop pivot and did not contain any displaying males (Figure 1). JSNWR ST4, the only sharp-tail grouse site on the refuge recorded in 2008, did not contain any displaying male birds in 2009; tall old growth warm season grasses were observed in the UTM coordinates for this location (Figure 2).

The 5 greater prairie-chicken booming grounds had a total of 92 birds, with grounds averaging 18.4 birds per ground, of the 92 birds 67 of which were males with grounds ranging from 9 to 22 males and an average of 13.4 males per ground and 25 were females with grounds ranging from 2 to 9 female birds with an average of 8.3 females per ground (Table 2). The 3 sharp-tail grouse dancing grounds had a total of 74 birds, with grounds averaging 24.6 birds per ground, of the 74 birds 62 of which were males ranging from 15 to 24 birds per ground and an average of 20.6 males per ground and 12 females ranging from 2 to 6 females and an average of 4 female birds per ground (Table 2).

Discussion

This inventory documents prairie grouse display grounds within and adjacent to the refuge. Greater prairie-chickens and sharp-tailed grouse like areas of sparse vegetation for display ground activity. However, there are not many sparse areas of grassland for greater prairie-chickens and sharp-tailed grouse to display on the refuge.

Table 1. Prairie Grouse Display Ground Locations

GPS Identifier	UTM prefix	UTM x-coordinate	UTM y-coordinate
JSNWR PC1	14T	453373	4672207
JSNWR PC2	14T	447797	4670443
JSNWR PC3	14T	449644	4672482
JSNWR PC4	14T	453582	4674096
JSNWR PC5	14T	447469	4671816
JSNWR ST1	14T	453676	4674119
JSNWR ST2	14T	448627	4669578
JSNWR ST3	14T	454751	4672852
JSNWR ST4	14T	448860	4670996
JSNWR ST5	14T	454672	4673469

Table 2. Greater prairie chicken (GPC) and sharp-tailed grouse (STG) display grounds

Ground Number	Species/Lek	2008 Greater Prairie-Chicken			2009 Greater Prairie-Chicken		
		♂	♀	Total	♂	♀	**Total**
4	GPC 1	12	1	13	11	2	13
2	GPC 2	24	12	38	22	9	31
1	GPC 3	17	9	26	16	8	24
6	GPC 4	12	4	16	9	2	11
9	GPC 5	7	3	10	9	4	13
TOTAL				103	67	25	92
Ground Number	Species/Lek	2008 Sharp-tailed Grouse			2009 Sharp-tailed Grouse		
					♂	♀	
		♂	♀	Total			**Total**
5	STG 1	19	1	25	24	6	30
3	STG 2	13	3	16	15	2	17
7	STG 3	12	5	17	23	4	27
8	STG 4	10	2	16	0	0	0
10	STG 5	11	2	13	0	0	0
TOTAL				87	62	12	74

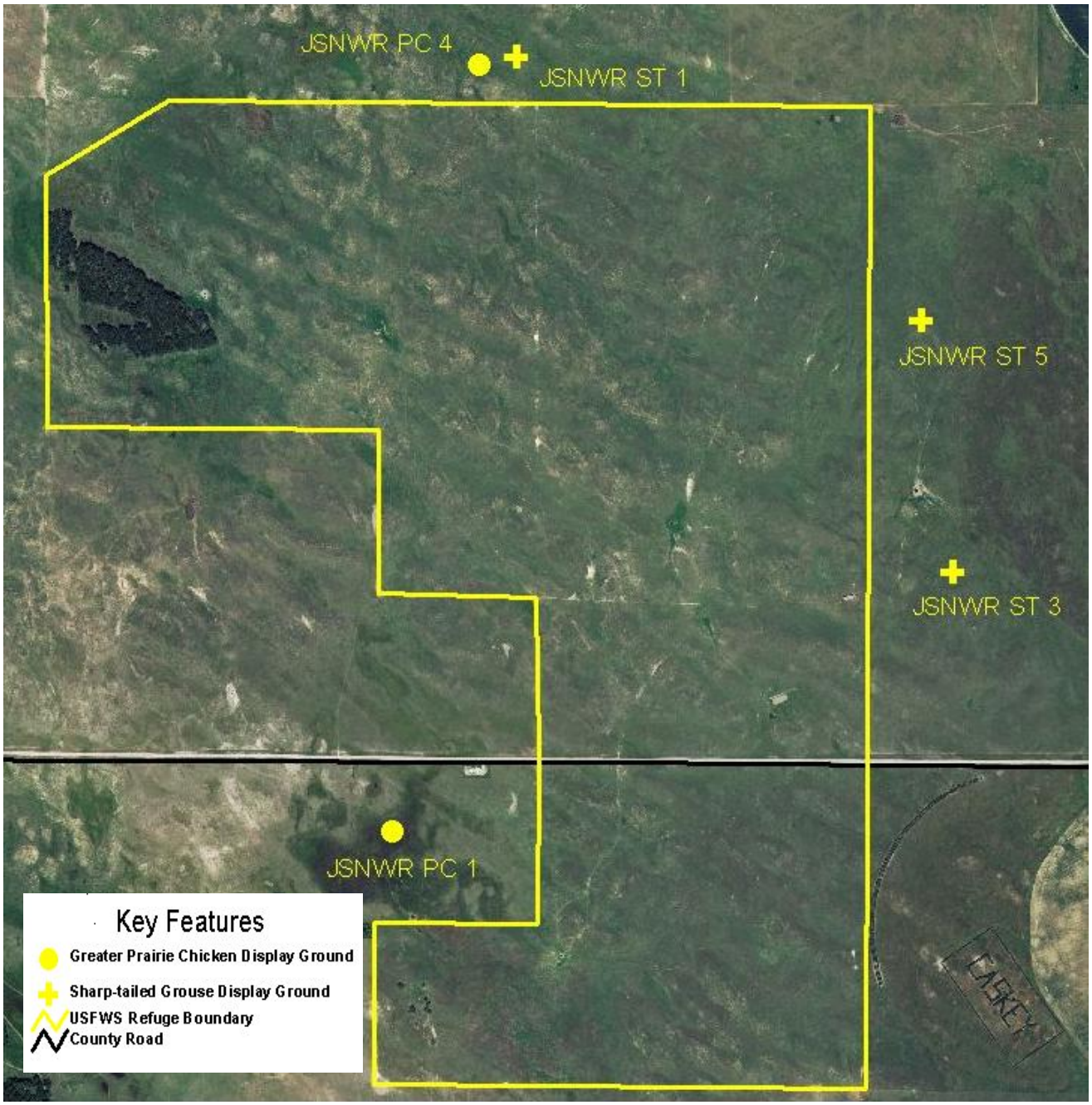

Figure 1. USFWS boundary associated to prairie grouse display areas

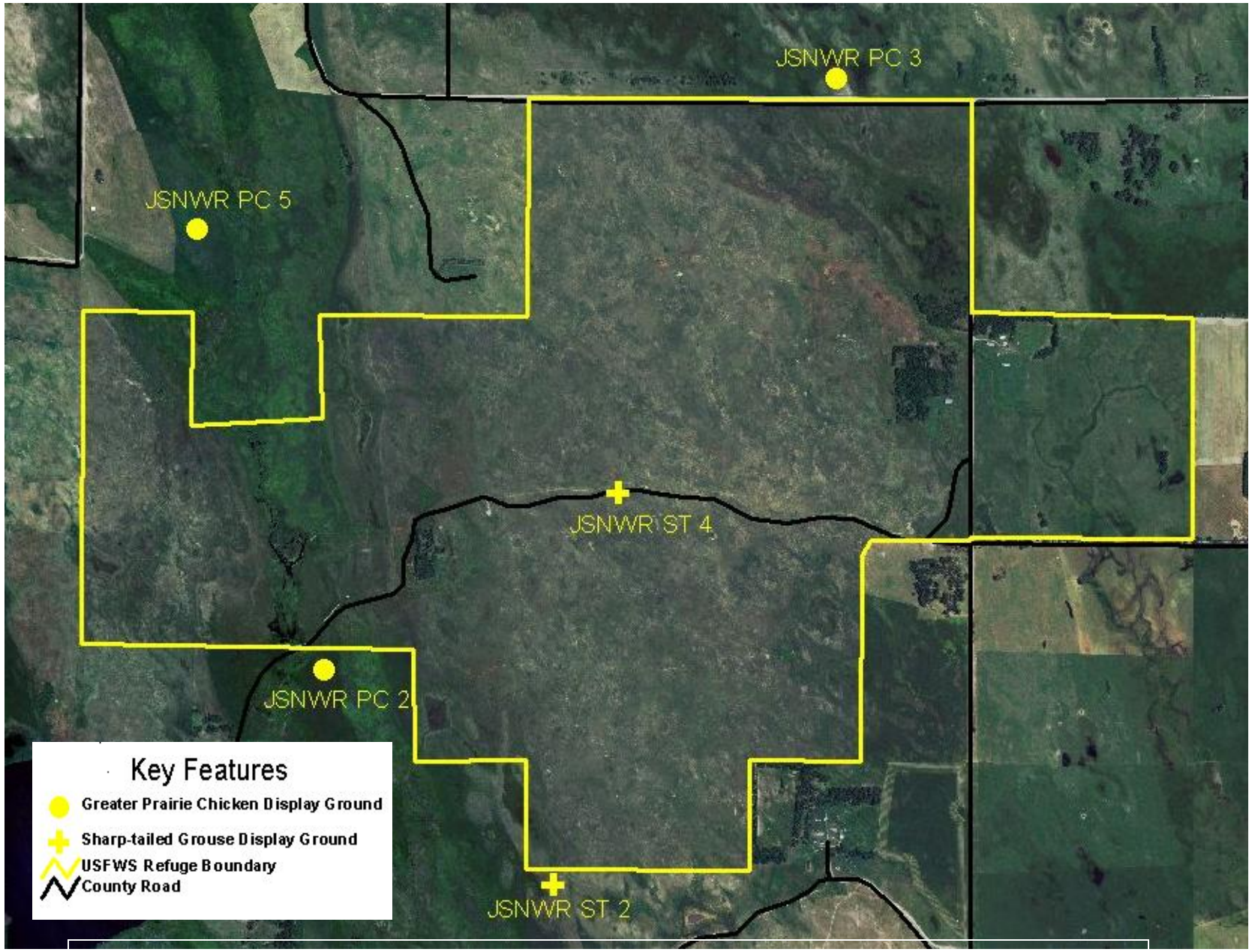

Figure 2. USFWS boundary associated to prairie grouse display areas